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EXAMINER
SETO, JEFFREY K

ART UNIT	PAPER NUMBER
2458	

NOTIFICATION DATE	DELIVERY MODE
12/17/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>13 October 2009</u>.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-24 and 26-44</u> is/are pending in the application.
   4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) <u>1-24 and 26-44</u> is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a)☐ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____.
      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date <u>10-13-09</u>.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

U.S. Patent and Trademark Office
PTOL-326 (Rev. 08-06)   Office Action Summary   Part of Paper No./Mail Date 20091208

DETAILED ACTION

Claims 1-24 & 26-44 are pending.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10-13-

2009 has been entered.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 8-24-2009 is in

compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure

statement has been considered by the examiner.

Response to Arguments

Applicant's arguments filed 10-13-2009 have been fully considered but they are

not persuasive. Regarding Applicant's argument that Bauer does not teach "the

controlling means being arranged to receive parameter data from the segmenting

means." Bauer teaches a Packet Control Unit (PCU) (18) that is equivalent to

Applicant's controlling means. Bauer also teaches a Down Link (DL) request scheduler

(26) that is equivalent to Applicant's segmenting means. Bauer further teaches that the

request scheduler (26) sends parameter data to the Control Unit (18) (See par. 14, lines

1-4; wherein allocation of capacity and temporary queue, are parameter data; and

Figure 2; wherein blocks scheduler (34) is part of the Control Unit (18)).

Regarding Applicant's argument that Bauer does not teach "to calculate a high

watermark value and a low watermark value in response to the received parameter data

and radio link resources data." Bauer teaches a Base Station System Virtual

Connection (BVC) queue (36). The BVC queue (36) includes an upper timeslot trigger

(TS(u)) and an upper BVC trigger (BVC(u)), either of which can equate to Applicant's

high watermark value. Bauer also teaches that the BVC queue (36) includes a lower

timeslot trigger (TS(l)) and a lower BVC trigger (BVC(l)), either of which can equate to

Applicant's low watermark value. Bauer further teaches that the timeslot triggers (TS(u)

& TS(l)) are calculated based on the received parameter data and radio link resources

data (See par. 18, lines 1-5; wherein the timeslot triggers depend on the length of the

queue, and the length of the queue depends on the parameter data, i.e., allocated

capacity; and par. 17, lines 2-3; wherein the Logical Link Layer (LLC) data, is the radio

link resources data).

Regarding Applicant's argument that Bauer does not teach "the controlling

means…to control the segmenting means to maintain the number of data frames in the

buffering means between the high and low watermark values." Bauer teaches that the

control unit (18) maintains the number of data frames in the BVC queue (36) between

the upper timeslot trigger and the lower timeslot trigger (See par. 18, lines 1-5, and

Figure 2; wherein the BVC queue (36), is the buffering means, and wherein the DL

request scheduler is part of the control unit (18)).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

Claims 14 & 43 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

1.   Regarding claim 14, "a low watermark value" is introduced in line 8. Then, in line

13, another "a low watermark value" is recited. It is not clear if Applicant is introducing a

second low watermark value, in line 13, or if Applicant is referring back to the value

mentioned in line 8.

2.   Regarding claim 43, "the controlling means" in line 2, lacks antecedent basis.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

> (a) the invention was known or used by others in this country, or patented or described in a printed
> publication in this or a foreign country, before the invention thereof by the applicant for a patent.

1.   Claims 1, 2, 5-11, 14, 15, 18-21, 24, 26-27, 39-40 & 41-42 are rejected under 35

U.S.C. 102(a) as being anticipated by European Patent Application Publication No. EP

1133201 A1 to Bauer, et al. (Bauer).

2.   Regarding claim 1, Bauer teaches an apparatus for transmitting data, the

apparatus comprising: segmenting means for segmenting data into data frames (See

paragraph 14, lines 1-2, and Figure 2; wherein the scheduler 26 is the segmenting

means); buffering means for buffering the data frames from the segmenting means (See

par. 14, line 5-7; wherein queue 36 is the buffering means); transmitting means,

connected to the buffering means to receive data frames therefrom, for transmitting the

data frames (See par. 14, lines 2-4; wherein scheduler 34 is the transmitting means);

and controlling means (See par.'s 11 & 12; wherein PCU 18 is the controlling means)

for controlling the segmenting means, the controlling means being arranged to receive

parameter data from the segmenting means pertaining to the segmented data frames

(See par. 14, lines 1-4; wherein allocation of capacity and temporary queue, are

parameter data; and Figure 2; wherein blocks scheduler (34) is part of the Control Unit

(18)) and radio link resources data from the transmitting means pertaining to the

transmission of data frames (See par. 21), to calculate a high watermark value (TS(u))

and a low watermark value (TS(l)) in response to the received parameter data and radio

link resources data (See par. 18, lines 1-5; wherein the timeslot triggers depend on the

length of the queue, and the length of the queue depends on the parameter data, i.e.,

allocated capacity; and par. 17, lines 2-3; wherein the Logical Link Layer (LLC) data, is

the radio link resources data) corresponding to maximal and minimal numbers of data

frames to be buffered in the buffering means (See par. 18, lines 1-5), and to control the segmenting means to maintain the number of data frames in the buffering means between the high and low watermark values (See par. 18, lines 1-5, and Figure 2; wherein the BVC queue (36), is the buffering means, and wherein the DL request scheduler is part of the control unit (18)).

3.   Regarding claim 2, Bauer teaches the controlling means is arranged to define a high band of values including the high watermark value and a low band of values including the low watermark values (See par. 26, lines 1-3 and Figure 2; wherein TS(u) to BVC(l) is the high band of values, and TS(l) to the first block in queue 36 is the low band of values).

4.   Regarding claim 5, Bauer teaches the controlling means is operable to control the transmitting means, the controlling means being arranged to generate a buffer empty signal for the transmitting means when the buffering means contains no data (See par. 21, lines 5-6; wherein signaling the end of a TBF is the equivalent of the a buffer empty signal).

5.   Regarding claim 6, Bauer teaches the segmenting means is arranged to transfer to the controlling means parameter data pertaining to time-out value of a retransmission timer susceptible to delay (See par. 21, line 4; wherein transmission is in accordance with GSM, thus retransmissions inherently include a time-out).

6.   Regarding claim 7, Bauer teaches the controlling means is arranged to calculate a transmit delay time by multiplying the time-out value by a constant, wherein the constant has a value greater than zero and less than or equal to 0.5 (See par. 21, lines

4-6; wherein re-transmissions are only sent after a delay, and delays are increased by a multiple with each unsuccessful transmissions, as is standard in transmission protocols such as GSM).

7.   Regarding claim 8, Bauer teaches the segmenting means is arranged to transfer to the controlling means parameter data pertaining to the size of the largest data frame that may be transmitted by the transmitter (See par. 14, lines 1-4; wherein allocation of capacity, includes the largest data frame that can be transmitted; and Figure 2; wherein blocks scheduler (34) is part of the Control Unit (18)).

8.   Regarding claim 9, Bauer teaches the controlling means is arranged to calculate the size of the largest frame from the largest data frame that may be passed to the transmitting means for transmission (See par. 14, lines 2-4; wherein size information is included in the allocation of the capacity and the queue).

9.   Regarding claim 10, Bauer teaches data frames may be transmitted in acknowledged and unacknowledged modes (See par.'s 14 & 15, and Figure 2 between channel (24) and queue (42); wherein a no-acknowledged mode may be used in other than normal operations), and the controlling means is arranged to calculate the size of the largest frame as the greater of the largest data frame that may be passed to the transmitting means for transmission in the acknowledged mode and the largest data frame that may be passed to the transmitting means for transmission in the unacknowledged mode (See par. 14, lines 2-4; wherein size information is included in the allocation of the capacity and the queue).

10.   Regarding claim 11, Bauer teaches the radio link resources data from the

transmitting means includes an allocated coding scheme and a number of allocated

transmission slots for the data frames to be transmitted, and the controlling means is

arranged to calculate a transmit rate from the allocated coding scheme and the number

of allocated transmission slots (See par.'s 24, 26 & 29; wherein bit rate depends on

coding scheme and queue length is dependent on number of allocated time slots).

11.   Regarding claim 14, Bauer teaches a method of transmitting data, the method

comprising: segmenting data into data frames (See paragraph 12, Figure 2, and (30));

buffering the data frames (See par. 18, line 1, Figure 2, and (36)); receiving buffered

data frames; transmitting the data frames (See par. 22, lines 4-5, Figure 2, and (34));

receiving parameter data pertaining to the segmented data frames and radio link

resources data pertaining to the transmission of data frames (See par. 29); calculating a

high watermark value (TS(U)) and a low watermark value TS(1)) in response to the

received parameter data and radio link resources data (See par. 18, lines 1-5; wherein

the timeslot triggers depend on the length of the queue, and the length of the queue

depends on the parameter data, i.e., allocated capacity; and par. 17, lines 2-3; wherein

the Logical Link Layer (LLC) data, is the radio link resources data) corresponding to

maximal and minimal numbers of data frames to be buffered; and maintaining the

number of buffered data frames between the high and low watermark values (See par.

5, lines 6-8, and par. 43, lines 1-2) by controlling the segmenting data into data frames

by monitoring the calculated high watermark and a low watermark (See par. 18, lines 1-

5, and Figure 2; wherein the BVC queue (36), is the buffering means, and wherein the

DL request scheduler is part of the control unit (18)).

12.   Regarding claim 15, this claim recites a method for operating the apparatus of

claim 2, and is rejected for at least the same reasons.

13.   Regarding claim 18, the claim recites a method for operating the apparatus of

claim 5, and is rejected for the same reasons.

14.   Regarding claim 19, the claim recites a method for operating the apparatus of

claim 6, and is rejected for the same reasons.

15.   Regarding claim 20, the claim recites a method for operating the apparatus of

claim 10, and is rejected for the same reasons.

16.   Regarding claim 21, this claim recites a method for operating the apparatus of

claim 11, as is rejected for at least the same reasons.

17.   Regarding claim 24, Bauer teaches a data transmitter in which incoming data for

transmission is divided into data blocks and passed in frame transmission order to a

radio link stage via a serial frame buffer which holds the data until the radio link is able

to transmit it (See par. 5), the incoming data having associated with it various

parameters and the radio link stage having allocated to it radio link resources which

parameters and resources change independently of each other from time to time and

are supplied to a controller (See par. 14) which calculates high and low buffer levels

therefrom and controls the passing of the data frames through the frame buffer to

maintain the number of frames in the buffer at any instant of time at a level between the

calculated high and low levels (See par. 29).

18.   Regarding claim 26, this claim recites an apparatus with the same or similar features as claim 1, and is rejected for the same reasons.

19.   Regarding claim 27, this claim recites an apparatus with the same or similar features as claim 2, and is rejected for the same reasons.

20.   Regarding claim 30, this claim recites an apparatus with the same or similar features as claim 5, and is rejected for the same reasons.

21.   Regarding claim 31, this claim recites an apparatus with the same or similar features as claim 6, and is rejected for the same reasons.

22.   Regarding claim 32, this claim recites an apparatus with the same or similar features as claim 7, and is rejected for the same reasons.

23.   Regarding claim 33, this claim recites an apparatus with the same or similar features as claim 8, and is rejected for the same reasons.

24.   Regarding claim 34, this claim recites an apparatus with the same or similar features as claim 8, and is rejected for the same reasons.

25.   Regarding claim 35, this claim recites an apparatus with the same or similar features as claim 10, and is rejected for the same reasons.

26.   Regarding claim 36, this claim recites an apparatus with the same or similar features as claim 11, and is rejected for the same reasons.

27.   Regarding claim 39, Bauer teaches the invention as described in claim 1. Bauer further teaches the segmenting means segments the data into various length data frames in response to controls from the controlling means (See par. 16, line 2; wherein

the length can be varied, as the length depends on the multi-slot capacity of the mobile station).

28.   Regarding claim 40, Bauer teaches the invention as described in claim 1. Bauer further teaches the segmenting means segments the data into a maximum length data frames allowed in response to controls from the controlling means (See par. 15, line 1-2; wherein reducing volume to the mobile station, includes using the maximum length data frames allowed).

29.   Regarding claim 41, Bauer teaches the invention as described in claim 14. Bauer further teaches the segmenting means segments the data into various length data frames in response to controls from the controlling means (See par. 16, line 2; wherein the length can be varied, as the length depends on the multi-slot capacity of the mobile station).

30.   Regarding claim 42, Bauer teaches the invention as described in claim 14. Bauer further teaches segmenting the data into a maximum length data frames allowed (See par. 15, line 1-2; wherein reducing volume to the mobile station, includes using the maximum length data frames allowed) while maintaining the number of buffered data frames between the high and low watermark values (See par. 18, lines 1-3; wherein TS(u) and TS(l), are the high and low watermark values).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

31.   Claims 3, 4, 12, 13, 16, 17, 22, 23, 28, 29, 37, 38, 43 & 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bauer, as applied to claims 2, 11, 15, 21 & 26 above, in view of U.S. Patent No. 5,802,310 issued to Rajaraman.

32.   Regarding claim 3, Bauer teaches the invention as described in claim 2. Bauer does not teach the controlling means is arranged to generate a suspend signal for the segmenting means when the number of data frames in the buffering means is in the high band. However, Rajaraman teaches this limitation (See column 4, lines 59-62). Using the feature of Rajaraman in the system of Bauer would have allowed the system to not only reduce the amount of data coming in, but also stop all data from coming in, when the buffer filled to a critical level. This would have prevented the loss of data due to buffer overflow. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the teachings of Rajaraman and Bauer.

33.   Regarding claim 4, Bauer teaches the invention as described in claim 2. Bauer does not teach the controlling means is arranged to generate a resume signal for the segmenting means when the number of data frames in the buffering means is in the low band. However, Rajaraman teaches this limitation (See col. 4, lines 62-64). Using the feature of Rajaraman in the system of Bauer would have allowed for the buffer to begin filling up again with data, once the buffer was emptied to a critical low level. This would have prevented wasted clock cycles, where no data was transmitted, thereby increasing

efficiency. Therefore, it would have been obvious to one of ordinary skill in the art, at

the time the invention was made, to combine the teachings of Rajaraman and Bauer.

34.   Regarding claim 12, Bauer teaches the invention as described in claim 11.

Bauer further teaches the radio link resources data from the transmitting means

includes an allocated coding scheme and a number of allocated transmission slots for

the data frames to be transmitted, and the controlling means is arranged to calculate a

transmit rate from the allocated coding scheme and the number of allocated

transmission slots (See par.'s 24, 26 & 29; wherein bit rate depends on coding scheme

and queue length is dependent on number of allocated time slots). Bauer does not

teache the controlling means is arranged to calculate the high watermark value from the

calculated size of the largest frame and the calculated transmit rate. However,

Rajaraman teaches this limitation (See col. 4, lines 44-45; wherein the first queue limit is

the high watermark). Using the feature of Rajaraman in the system of Bauer would

have allowed for the optimal high watermark to be calculated, which would allow for

optimal efficiency during data transfer. Therefore, it would have been obvious to one of

ordinary skill in the art, at the time the invention was made, to combine the teachings of

Rajaraman and Bauer.

35.   Regarding claim 13, Bauer teaches the invention as described in claim 1. Bauer

does not teach the controlling means is arranged to calculate the low watermark value

as a fraction of the high watermark value. However, Rajaraman teaches the controlling

means is arranged to calculate the low watermark value as a fraction of the high

watermark value (See col. 5, lines 28-30; wherein the same multiple is used to set both

high and low watermarks). Using the features of Rajaraman in the system of Bauer would have allowed for an optimal low watermark to be calculated, which would insure sufficient capacity for burst transmissions during data transfer. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made, to combine the teachings of Rajaraman and Bauer.

36.   Regarding claim 16, this claim recites a method for operating the apparatus of claim 3, and is rejected for at least the same reasons.

37.   Regarding claim 17, this claim recites a method for operating the apparatus of claim 4, and is rejected for at least the same reasons.

38.   Regarding claim 22, this claim recites a method for operating the apparatus of claim 12, and is rejected for at least the same reasons.

39.   Regarding claim 23, this claim recites a method for operating the apparatus of claim 13, and is rejected for the same reasons.

40.   Regarding claim 28, this claim recites an apparatus with the same or similar features as claim 3, and is rejected for the same reasons.

41.   Regarding claim 29, this claim recites an apparatus with the same or similar features as claim 4, and is rejected for the same reasons.

42.   Regarding claim 37, this claim recites an apparatus with the same or similar features as claim 12, and is rejected for the same reasons.

43.   Regarding claim 38, this claim recites an apparatus with the same or similar features as claim 13, and is rejected for the same reasons.

44.   Regarding claim 43, this claim recites an apparatus for operating the method of claim 39, and is rejected for the same reasons.

45.   Regarding claim 44, this claim recites an apparatus for operating the method of claim 40, and is rejected for the same reasons.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey Seto whose telephone number is (571)270-7198. The examiner can normally be reached on Monday thru Thursday and alt. Fridays, 9:30 AM-7 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph E. Avellino can be reached on (571) 272-3905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

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JKS
12/9/2009

/Joseph E. Avellino/
Supervisory Patent Examiner, Art Unit 2458